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RUDBECKIA

OUR SEPTEMBER MEETING

The Missouri Native Plant Society held its fifth board meeting 9:30 a.m. at Thousand Hills State Park with some 22 members present. The meeting commenced in a lakeview private dining-banquet room, part of a new restaurant facility operated by Steve Kolb. The meeting was followed by a five car safari caravan to the site of Big Tooth Aspen on the south side of Thousand Hills State Park. Park Naturalist Steve Schneider led the tour.

Board Members present: Jon Hawker, President
Paul Nelson, Secretary
Jim H. Wilson, Treasurer
Melvin Conrad
John Karel
Wallace Weber

The meeting was opened by President Jon Hawker and included a brief welcome/introduction by John Karel to all in attendance to the park. All board members and guests were introduced.

A. Minutes of June 7, 1980 Meeting - MONPS approved the minutes with no changes.

B. Treasurer's Report - Our report indicated to date $1,861.83 in the account with additional funds forthcoming from the sale of books. Melvin Conrad

reported election expenditures of $109.11 in phone calls, ballot mailouts, etc. The board approved reimbursement of these funds from the treasury.

Membership report indicated some 49 members past due on second year dues. Even though a reminder was published in Missouriensis to pay dues, the board approved notices to be mailed out by the Treasurer.

C. Agenda - Old Business

1. Results of Board Election - Approximately 90 returns were counted out of a total of 273 ballots mailed for election of two new board members to replace Ken Olson and Art Christ. In compliance with the election provisions of the Society's bilaws, the board announced election of Dr. Wallace Weber and reelection of Ken Olson. Dr. Weber was officially seated at the meeting.

   Nominations were received for the appointment of a board member to serve the remainder term of Mary Wiese who resigned earlier. There was considerable discussion about the needs inherent in the nomination for this position including such issues as geographical representation, balance in academic and layman botany, and institutional representation.

2. Logo Contest - It was announced by President Jon Hawker 5 logos will be published in the next issue of Missouriensis for selection by membership vote.

3. Photo Contest - Jon Hawker introduced Gary Reese who showed the board and members examples of portable natural history displays, poster, and photo prints. Gary offered his services in completion of an exhibit.

   It was motioned an editorial committee be selected to work with Gary and other membership volunteers with an interest in designing and completing an exhibit. Jon Hawker selected Karen Haller to co-chair an editorial committee with Edgar Denison to coordinate this effort.

   There was also mention of display needs and distribution.

New Business

1. Establishment of Committees - Jon Hawker addressed needs for the organization of several committees and gave examples of their division of responsibility. There was lengthy discussion concerning the need for some of the committees. It was indicated the purpose of this discussion was to just address the need and leave defining of functions and term of the committee to the nomination committee as well as appointed chair-persons. Jim Wilson moved to approve establishment of committees with request for willing members to serve on such committees printed in Missouriensis. Motion carried. Committees needed include:

   Field Trip Committee
   Political Action Committee
   Editorial Committee
   Membership Committee
   Nomination Committee

2. Publication of Missouriensis - Shall the present form of an official publication Missouriensis now be printed or remain in its present form was the topic of discussion. Discussion included need to reflect professional appearance in elevating its status as well as convenience of filing or library shelving.

   The board and members present reaffirmed our objective recognition of a journal equal to Castanea, Michigan Botanist, or Rhodora. Missouriensis could serve in two forms: a newsletter and journal. It was decided to forego professional printing due to costs and further research of standards by an editorial committee. However, the board endorsed the advancement toward a printed cover for the newsletter when the logo design is selected, possibly our winter or spring issue.

3. Herbarium Curator Assistant, University of Missouri - Columbia - Gary Reese announced the University is considering an increase in funding for assistant curator at the herbarium. The herbarium contains a large number of unaccessioned Steyermark collections and is in need of additional management. Gary Reese is to draft a letter of support for President Jon Hawker's signature on behalf of the Society to appropriate University officials.

4. County and State Record Inventory - Gary Reese, who was appointed as the volunteer coordinator for the clearinghouse of botanical data at the June 7 meeting, presented his work on the computerization of new county and state flora records based on Steyermark. Gary and Ginny Klomps both explained the objectives of the project which included listing of species, authority, date collected, collector, county, list of counties by species; and indication by coding level of confidence for collections (herbarium voucher, photo, siting, etc.). They stated no attempt was made to verify or annotate the information, but to organize and present the information. Motioned by Dr. Wallace Weber, it was approved.

   Costs incurred for Gary's work on the computerization process and future maintenance of the system ($10.00 per month) would be reimbursed at the Society's expense with the provision the distribution information become the property of the Society with control of its use.

   Dr. Wallace Weber reported on a similar project he has been working on for the computerization of herbarium information in addition to investigation of computer program development. Weber supplied the Society with a handout explaining the costs, maintenance, and establishment of a program in Minnesota. He explained the costs may run between 10 and 20 thousand dollars to develop. Paul Nelson mentioned development of a computer data system should universally include all voucher data including ecological information, location, etc., in order to prevent costly duplication of effort and eliminate similar projects more restrictive or limited in information. At this point, due to completion of the pilot study and program investigation, he mentioned further work on the subject could be continued by Gary Reese.

   The need to select an Inventory Research Committee was explained in order to establish criteria and standards for collection information as well

as investigate other computer systems. Jon Hawker will ask Rick Daley to chair the committee. Persons interested or mentioned to serve on the committee were Gary Reese, Paul Nelson, Dr. Wallace Weber, Doug Ladd, and Mr. Krebs.

5. Condensed Key to Flora of Missouri - Dr. Weber reported on progress of revised condensed key for the flora of Missouri. He circulated an example of the key to the board which model's the Guide to the Vascular Flora of Illinois by Dr. Robert Mohlenbrock. His recent meeting with Dr. Mohlenbrock included adoption of keys from the Guide. Both he and Mohlenbrock are going forth with the project.

6. Nomination Committee - Jon Hawker appointed Wallace Weber to chair the committee.

D. Announcements

1. John Karel informed the Board that the Department of Natural Resources recently acquired lands which included an important botanical station for Goldie's shield fern and spinulose shield fern. The area, known as Red Sink, is now a part of Ha Ha Tonka State Park.

2. John Wylie announced the Department of Conservation is about to acquire a nationally significant site in southeast Missouri which harbors pondberry. The area will possibly be named Sandpond State Forest.

E. Next Meeting

December 6,1980 is set as the next meeting date. The meeting will be held at the Linda Hall Library, 5109 Cherry, Kansas City, from 10 a.m. until 3 p.m. Tom Gillies, Director, has kindly promised to have an exhibition of herbals set up in the auditorium

PRAIRIE CONFERENCE

Take a group of people interested in prairies, but don't try to organize them. There will be no dues-paying members, no constitution or bylaws, no officers, no newsletters. What do you get? Outstanding prairie conferences, that's what. And the 7th North American Prairie Conference held in Springfield, Missouri, August 4 - 6, 1980, was one of the best.

As a Missourian I was proud; proud of our prairies and their distant cousins, the glades; proud of the fine job Paul Redfearn, Wally Weber and their Southwest Missouri State University colleagues did in organizing and conducting the conference with the help of various sponsoring organizations; proud of the many fine talks by Missourians; proud of the outstanding films, photographs, and slide series presented, the most memorable of which was S.M.S.U.'s Ozark Odyssey, Sassafrass; proud of the handful of Missourians including Don Christisen and Bill Crawford who first pulled this unorganized group of kindred souls together, 14 or so years ago; and most particularly proud of the organized Missouri Prairie Foundation and Nature Conservancy, who together have done so much both to instill an appreciation of prairies and to preserve them.

We showed them in the Show-Me State.

Of all the states east of the Great Plains, Missouri has the richest assemblage of remaining prairies. Walter Shroeder, a geographer from the University of Missouri at Columbia, reported to the Conference that by using General Land Office survey notes, he calculated that prairies once covered 11,730,000 acres (26%) of our Missouri landscape.

How much is left is anybody's guess but probably 50 to 60 thousand acres. At less than ½ of 1% of the original, this seems a pitiful remnant, yet it is more than other eastern states can boast. We are fortunate too in having over 10% of what is left (7,200 acres) in public prairies which will be preserved. (Not that this is enough -- more are still needed, in other counties, in larger tracts, and in different types.)

Paul Nelson reported to the Conference that Missouri is richer still in glades. Paul and his colleagues have identified and mapped 400,000 acres of glades. (I doubt if any other state can even come near us.)

Glades, as Father James Sullivan described them in The Nature Conservancy Newsletter (Summer, 1978), have an affinity with prairies, occur in forests, and best of all, (from a botanist's standpoint) have characteristics all their own with some plants found nowhere else.

The one thing the Conference illustrated is that there is a lot of work going on prairies. We are learning more all the time about the biological communities in these islands (once a sea) of grass. We are learning more about their management and we are learning how to enjoy -- perhaps appreciate might be a better word -- them more.

People make any conference and they were of the finest kind at the Prairie Conference. (Ever notice how people of like mind seem so much nicer?) Native Plant Society members were well represented both in quantity and in quality.

A NEW KIND OF STATE PARK

Few Missourians are aware that, in presettlement days, at least a quarter of our state was covered by tallgrass prairie; but those few know, too, that, of the original 12,000,000 or so acres of such prairie, only about 55,000 remain relatively undisturbed today. These are mostly in small, scattered remnants, and are found mostly in southwestern Missouri.

It may also be known to only a few that part of the statutory responsibility of the Missouri State Park System is to preserve examples of the state's characteristic landscapes. Until May of this year, the most glaring inadequacy in this representation was the prairie landscape;* this gap has now been filled, with the aid of the Missouri Chapter of the Nature Conservancy. The 1,680 acres of Prairie State Park will henceforward be owned and managed by the Department of Natural Resources, Division of Parks and Historic Preservation.

> To early European man, the prairie was a place of vastness and immense loneliness, without trees for shelter, where constant threat of prairie fire to homes, animals and man instilled fear. It was the last section of our country to be conquered. It has also, until now, been the most overlooked in preservation.

This may be in part for the reasons given above, in part, alsc because prairie has until quite recently been taken for granted, and unappreciated, even though the planners go on to describe this as the sort of terrain that is backbone to much of the state's agriculture and cattle industry!

In the Master Plan we go on to read that,

> Placed in perspective with the physiographic regions of the state, the Park is located on unglaciated prairie of the central lowlands region... Locally, this....is known as the Osage Prairie region, characterized by level or gently rolling hills, which merge, 80-100 miles to the east, irregularly and indefinitely into the western border of the Interior Highlands, specifically the Springfield Plateau.

More specifically still, over 75% of Barton County, in which the Park lies, has been converted to cropland; therefore, finding over 1,600 unplowed contiguous acres that could be acquired for the public benefit was a bit of rare good fortune, for which the state is indebted to the Nature Conservancy.

The Plan reminds us that, historically, this acreage must once have helped support great herds of bison and elk, and large flocks of prairie chickens (which are still occasionally sighted!), thus serving as a fruitful hunting ground for the Sac and Osage Indians of the area. When the settlers first arrived, coal was discovered, and evidence of several small strip-mined tracts can still be seen; but the mining became unprofitable around 1930, and the land now in the Park, as well as in surrounding areas, has been used primarily for grazing and haying.

Most of the acreage of the Park is underlain by shale and sandstone formed during the Pennsylvanian Period of geologic history, some 300,000,000 years ago. Over the years, however, wide-ranging irregularities in soil condition have developed from this ancient substrate, creating a great variety of habitat for both plants and animals, and ecosystems much more diverse than those of the prairies in the northern part of the state.

These range from wet depressions and prairie streams or sloughs to dry sandstone outcrops and ledges; from shaded bottomland forests along major streams to open savannas of sparse tree-covered prairie slopes. Each is characterized by certain plant and animal species, living together in a community that is largely self-sufficient. As elsewhere, the plant and animal species of these ecosystems are dependent largely upon each other, as well as upon the geologic substrates, the soils, the moisture and the topography of the environment. But unlike that that of most other areas, the flora of Prairie State Park is particularly rich in that certain plants usually more at home in areas more southwesterly than Missouri are found here, as well as plants that venture west from their typically Ozarkian habitats, along forested drainages and rock exposures.

Prairie State Park is already open to the public for hiking, nature study, and scientific research. (See map, pg. 8). Development, to begin this fall, will consist of an interpretive/visitor center, a small campground, and other facilities. Appended is the list of plants already identified on this great new public property.

Those same people cognizant of the originally large areas of prairie in Missouri are also well aware of some of the factors essential to the well-being of prairie ecosystems, but not conducive to the well-being of naturalists on an August day. Unrelenting heat, searing sun, drought and fear of fire were constantly recurring themes in the lives of prairie settlers (as witness novels by Willa Cather, Hamlin Garland, Ole Rolvaag); for conferees at the Seventh North American Prairie Conference (see pg.) the themes were adequately stated during a field trip to Prairie State Park. None regretted that the trip terminated, not in sod houses like those of the early settlers, but in the air-conditioned comfort of the Conference's host, Southwestern Missouri State University.

None regretted, either, having chosen that particular field trip, because, with the help of knowledgable guides, the participants saw (as well as feeling!) many of the realities about which they had previously only read...for instance, that many of the plants they had anticipated seeing in bloom were already dormant... obviously a response to the rigors of the summer of 1980. But such plants are not destroyed by these conditions; they are most generally perennials, perfectly able to live underground and wait for the coming of another season. A plant list appended to this report is far from complete, as the area has not been in state hands long enough for a careful survey to be made, and even on the short visit made by the conferees several new species were added to this already long checklist.

Although the plant (andanimal) list is not complete, the state naturalists have prepared a good deal of material of general interest about the area of the new park, and much of the following is excerpted from their Master Plan.

> Much of Missouri was (once) part of the tallgrass prairie which covered approximately 400,000 square miles of North America as recently as 200 years ago. Most of northern Missouri, as well as much of the southwestern part of the state, once lay beneath a rolling mantle of tall grass and sun-loving prairie wildflowers harmoniously blended among open, park-like savannas....

*Although not part of the State Park System, a number of publicly-owned prairies exist in the state; see Department of Conservation's brochure, Public Prairies of Missouri.

Preliminary List of Plant Species at Prairie State Park

A. Dominant Grasses:

Andropogon virginicus
Andropogon scoparius
Andropogon ternarius
Andropogon gerardi
Sorghastrum nutans
Spartina pectinata

B. Other Grasses:

Agrostis alba
Aristida oligantha
Bouteloua curtipendula
Elymus canadensis
Eragrostis spectabilis
Koeleria cristata
Leersia oryzoides
Panicum clandestinum
Panicum virgatum
Panicum lanuginosum
Poa pratensis

C. Sedges and Rushes:

Eleocharis acicularis
Eleocharis tenuis
Scirpus lineatus
Scirpus atrovirens
Scleria triglomerata
Juncus torreyi

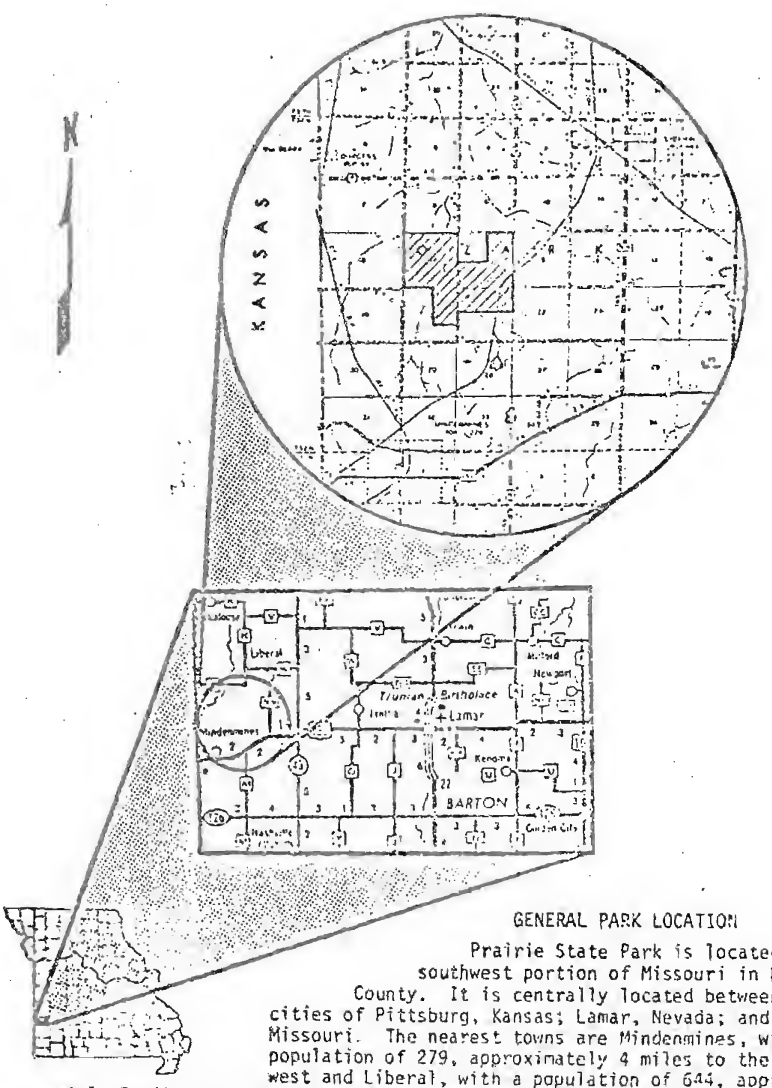
D. Herbaceous Plants:

Achillea millefolium
Agrimonia parviflora
Ambrosia artemissifolia
Ambrosia bidentata
Amorpha canescens
Apocynum cannabinum
Antennaria neglecta
Asclepias viridis
Asclepias tuberosa
Asclepias verticillata
Aster paludosus
Aster novae-angliae
Aster oblongifolius
Aster pilosus
Aster azureus
Aster sericeus
Baptisia leucantha
Baptisia leucophaea
Bidens aristosa
Buchnera americana
Cassia fasciculata
Cuscuta maculata
Cirsium altissimum
Coreopsis palmata
Crotalaria sagittalis
Crotonopsis elliptica
Desmodium illinoense
Diodia teres
Dodecatheon meadia
Erechitites hiercifolia
Erigeron annuus
Erythronium albidum
Eryngium yuccifolium
Eupatorium perfoliatum
Eupatorium serotinum
Eupatorium altissimum
Euphorbia corollata
Fragaria virginiana
Galium obtusum
Gaura biennis
Gentiana puberula
Geranium carolinianum
Gnaphalium obtusifolium
Habenaria lacera
Helenium autumnale
Helianthus grosserserratus
Helianthus mollis
Helianthus tuberosus
Hieracium longipilum
Hypericum punctatum
Hypoxis hirsuta
Krigia occidentalis
Lespedeza capitata
Lespedeza virginica
Liatris pycnostachya
Liatris aspera
Linum medium
Lobelia specata
Lycopus americanus
Lythrum alatum
Monarda fistulosa
Myosotis virginiana
Nothoscordum bivale
Oenothera biennis
Oxalis stricta
Oxalis violacea
Parthenium integrifolium
Penstemon digitalis
Penstemon tubaeflorus
Physalis heterophylla
Phystostegia angustifolia
Plantago virginica
Pluchea camphorata
Polygala sanguinea
Polytaenia nuttallii
Potentilla simplex
Prenanthes aspera
Prunella vulgaris
Psoralea psoralioides
Pycananthemum virginianum
Ranunculus abortivus

Rudbeckia hirta
Ruellia humilis
Sabatia angularis
Salvia azurea
Schrankia uncinata
Scutellaria parvula
Senecio pauperculus
Silphium integrifolium
Silphium terebinthinaceum
Sisyrinchium campestre
Solidago radula
Solidago graminifolia
Solidago gymnospermoides
Solidago rigida
Solidago nemoralis
Solidago altissima
Specularia perfoliata
Spermolepis inermis
Spiranthes cernua
Stylosanthes biflora
Typha latifolia
Verbena canadensis
Verbena hastata
Verbena unticifolia
Vernonia baldwinia
Viola pedatifida
Veronicastrum virginicum

E. Woody Plants:

Amorpha fruticosa
Ceanothus americanus
Cephalanthus occidentalis
Cornus drummondii
Crataegus species
Crataegus crus-galli
Prunus americana
Rhus glabra
Rhus copallina
Rhus radicans
Rosa carolina
Sambucus canadensis
Ulmus americana



GENERAL PARK LOCATION

Prairie State Park is located in the southwest portion of Missouri in Barton County. It is centrally located between the cities of Pittsburg, Kansas; Lamar, Nevada; and Joplin, Missouri. The nearest towns are Mindenmines, with a population of 279, approximately 4 miles to the southwest and Liberal, with a population of 644, approximately 5 miles to the northeast. Several major highways, 69, 160, 54 and 71, provide easy access to the general area and good secondary and county roads allow access to the site. It is also important to note, because of Prairie Park's value as a site for grassland studies, it is located within 70 miles of 5 colleges or universities. These include: Southwest Missouri University at Springfield, Missouri Southern College at Joplin, Crowder College at Neosho, Kansas State College at Pittsburg, and Northeastern Oklahoma at Miami.

HELP WANTED

Chenopodium

Dr. Pertti Uotila, Botanical Museum, The University, Unioninkatu 44, SF-00170 Helsinki 17, Finland, would very much like to have a sample of seeds of the various entities of Chenopodium found in this area, especially in the C. album group, to cultivate and compare with those in Finland where they are introduced. He would like these to be accompanied by vouchers if possible but the seeds will be welcome in any case.

Whatever envelopes of seeds of Chenopodium you can collect could be sent to me for transmittal to Dr. Uotila. I will greatly appreciate whatever you can do.

Peter Raven, Missouri Botanical Garden, P.O.Box 299, St.Louis, MO., 63166.

Great Plain's Ladies'-Tresses, Spiranthes magnicamporum Sheviak

Don Kurz
Missouri Department of Conservation
St. Louis, Missouri 63117

The Great Plain's ladies'-tresses (Spiranthes magnicamporum) is a recently described orchid formerly placed under the nodding ladies'-tresses (Spiranthes cernua) or a variety of it (var. ochroleuca or var. odorata). In 1973, Dr. Charles Sheviak described this morphologically distinct taxon after fourteen years of field experience and examining hundreds of herbarium specimens from all parts of the range of the S. cernua complex.

Since S. magnicamporum occurs on dry prairies and related grasslands from northwestern Indiana onto the Great Plains, he combined from the Latin magnus, "large," and campus, "plain," hence magnicamporum, "of the Great Plains." Disjunct populations are known from the prairies of western Ohio and the black belt of Mississippi and Alabama.

Unlike S. cernua, which generally occupies acidic soils, S. magnicamporum is a distinct calciphile. It can be found on black-soil prairies, sand prairies and xeric mid-grass hill prairies. Missouri is well within the range of this orchid but few sites are known. Dr. Sheviak examined dozens of herbarium specimens of S. cernua from Missouri and found only two that fit S. magnicamporum (personal communication). He provides the following information:

Barry Co.: Eagle Rock, uncommon. 22 Sept. 1896.
Christian Co.: Chadwick, high hills. 29 Sept. 1905.

Although I have not checked the habitat for these collections it is possible that they may be glade or rocky prairie locations and if so, a new habitat for this orchid.

In Illinois, S. magnicamporum (type locality: hill prairie, Greene Co.) reaches its peak of abundance on lightly grazed loess hill prairies. It is rare in undisturbed sites. Similar habitat in Missouri would be the loess mounds or hill prairies above the Missouri River in Atchison and Holt counties. Caryle Luer in his book "The Native Orchids of the United States and Canada," assumes a broad range for S. magnicamporum in Missouri including all but the Ozark, Big Rivers, and Mississippi Lowlands natural divisions of the state.

S. magnicamporum differs from S. cernua in having its sepals spreading or ascending but not closely paralleling the petals as in the latter. In S. magnicamporum the lip is oblong to rhombic-ovate, without a suborticular dilated base whereas in S. cernua the lip is ovate to suborbicular with a dilated base. The flowers of S. magnicamporum are whitish to cream and strongly scented, suggesting coumarin, while S. cernua has white flowers that are scentless or faintly fragrant. S. magnicamporum usually flowers several weeks after its leaves have withered and died with only a few bracts remaining fresh on the stem. In S. cernua leaves are persistent at the time of flowering in favorable habitats. Time of flowering is also different at least in Illinois. S. cernua flowers earlier from mid-August to mid-October, while S. magnicamporum flowers from mid-September into November.

Judging from the few collections made of S. magnicamporum in Missouri it is possible that the orchid may be quite rare. The timing of this fall issue of "Missouriensis" should be well within the flowering schedule of S. magnicamporum. If you should come across this orchid while botanizing, especially in Barry and Christian counties, please send information on its location, date, size of popu-

lation, habitat, and a specimen (roots not necessary) to the Natural History Section, Missouri Department of Conservation, P.O. Box 180, Jefferson City, MO 65102.

References

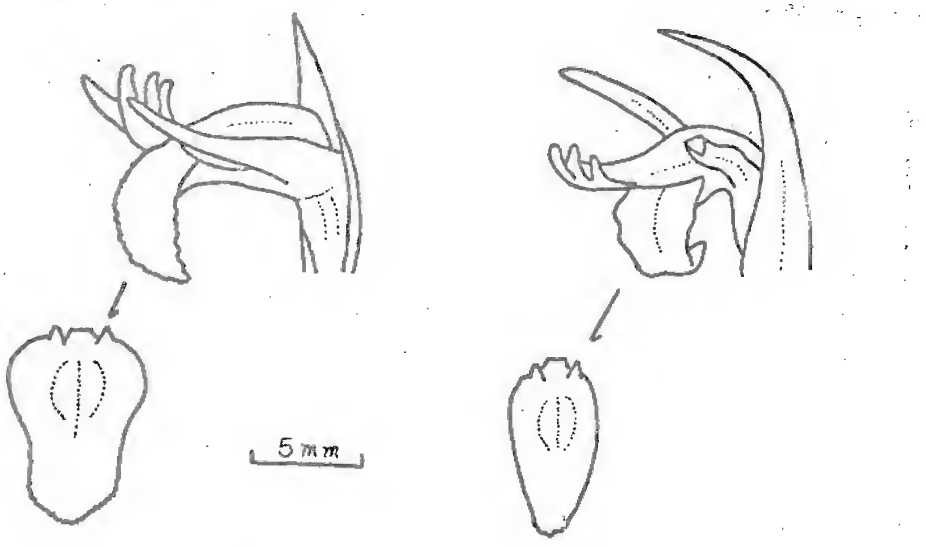
Luer, C.A. 1975. The Native Orchids of the United States and Canada excluding Florida. New York Botanical Garden. 361 p.

Sheviak, C.J. 1973. "A New Spiranthes from the Grasslands of Central North America." Bot. Mus. Leafl. Harvard Univ. 23:285-297.

Sheviak, C.J. 1974. "An introduction to the ecology of the Illinois Orchidaceae." Scientific Papers XIV. Illinois State Museum, Springfield. 89 p.

Spiranthes cernua

Spiranthes magnicamporum



Valerianella ozarkana

Doctor John Baumgardt is concerned about the status of Valerianella bushii and V. ozarkana. He thinks that both are in peril in his locality in McDonald County and he wonders if other people know of areas where this species grows.

Gravel removal, grazing and other surface disturbances have caused a deterioration in numbers of this species. (Dr. Baumgardt thinks the two species represent dominant and recessive genetic expressions of the same species with the only basic difference being the "wings" of the seed.)

John has been gathering seeds when he could both for European botanical gardens and to try to establish new local populations. However, he says, "Unless these institutions collect seed annually to resow, I cannot believe that they will be able to maintain the species; for years I have transferred seed from the natural site on the west side of new 86 to an apparently identical site not 500 yards away on the east side, and though the plants appear for a year or two, they do not establish and multiply."

In reply to Dr. Baumgardt's query, John Wylie said that neither he nor members of his staff know anything specific about this Ozark endemic member of the Corn Salad family. A member of the genus was seen by Gordon Maupin on a sandstone glade in Dade County, but he did not collect or key it out. Steyermark reports a collection in Madison County of V. bushii.

If this species is indeed in trouble, it should be considered for listing on both state and national endangered species lists.

We hope that Native Plant Society members will be on the lookout for these species and report their information to John Wylie, Missouri Department of Conservation, P.O.Box 180, Jefferson City, Missouri, 65102.

HELP OFFERED

The Department of Conservation has recently printed Additions to the Flora of Missouri by Dr. Norlan C. Henderson, University of Missouri-Kansas City. This publication reports 1,748 new county records and several state records for Missouri. A voucher specimen is located in the UM-KC herbarium for each plant, and the collector, collection number and date are included in the text for each record. There is no charge for the publication. Copies may be obtained by contacting Virginia Klomps, Missouri Department of Conservation, P.O. Box 180, Jefferson City, MO 65102.

A NOTE FROM AN ORCHID GROWER

Carson E. Whitlow Adel, Iowa

(A NOTE ABOUT THE "NOTE"

Carson Whitlow works for the Iowa Health Department, but his true interest is the propagation and breeding of Cypripediums.

I met Carson on a Native Plant Society field trip to visit the Small White Lady-Slipper site just across the Missouri line, in Iowa. Carson met our group and gave us a Cook's tour of this endangered species site. He discussed in some detail his efforts to propagate Cypripediums.

He sent this article to me for Missouriensis in hope of promoting better understanding among conservationists, preservationists, collectors and propagators.

Perhaps some letters to the editor of Missouriensis commenting on Carson's work are in order. Personally, I feel that the knowledge of propagation techniques which researchers like Carson are developing may be vital to the survival of some species.

Gordon Maupin
Missouri Department of Conservation)

As a collector and propagator of the hardy lady slippers (Cypripediums), I am always looking for representative and unusual clones of the various species to add to the collection. The primary concern is to maintain a very diverse gene bank for each of the species to produce selfed and hybrid seed, and to preserve unusual gene combinations. Conservationists at times get "on my case" for collecting these plants; however, it is usually more from misunderstanding than from understanding.

Most people don't realize that the Cypripedium species are relatively transient, few living in mature climax forests. As the overstory develops and closes, the plants die. Thus, collecting under these circumstances is often the only hope for these plants to survive. For unusual or rare gene combinations, their loss could be forever.

Collecting need not mean the removal of the plant from the breeding pool of the area, however. What is described below is a method by which a division of a plant can be made to (a) increase the number of growths, and (b) assure that removing a plant will not adversely affect the gene pool.

The Cypripediums generally have a creeping rhizome. Each year the new growth appears a half inch or so from where it did the year before and relatively in a straight line. The first thing that must be determined is the direction in which the plant is growing. This can be done by putting a pencil or a piece of stick next to the stem (in the same hole, if possible), when the plant goes dormant in the fall. Be careful, though, not to put it in too far and injure the rhizome.

The next year, one can tell which way the plant is growing by comparing where the new growth is, relative to the marking stick. In the late fall, very shortly before the plant goes dormant, a cut is made in the soil, about an inch in back of the marker stick, about 3-5 inches deep, 4 inches long and square to direction of growth. This should sever the front 1½" of the rhizome, with the new growth for next year, from the rest. The timing is important because late fall is when the plant has its greatest reserve of energy. The following spring, the front portion will act as if nothing happened. However, the back section, separated from the growth, will react as if it has been injured. It will begin making up a growth bud (or occasionally several) from its reserves. Most often, nothing appears the first year, but the next spring a plant will come up. Depending on the strength of the back section and the number of buds it develops, the size will vary from near mature to small seedling. Hereafter, the back portion will act in a normal fashion. Now there are two plants, but they are the same clone. This method is also good for forcing the plant to branch and to produce more stems, where it wouldn't do it normally. It is best to leave the back portion undisturbed if possible, when making divisions, or if you wish to remove the front plant. However, it is generally recommended to leave the front portion alone until the growth on the back portion reaches maturity. Then remove the front with as little disturbance of the back as possible.

When a plant gets large, it is often advantageous to thin it, since it seems to be self-limiting, perhaps from lack of nutrients. Remove the entire plant in the fall, clean off as much soil as possible, divide it primarily into front sections of 1½" or so, and replant them, either in the same location or elsewhere. The back portion should also be planted, even though it has no growths or just a few small ones. It will produce more. Be very careful of the new roots when dividing. They will not regrow. New roots will form next summer as the new growth for the following year is developed. Plants should be planted 6" or more apart.

Another method to help increase the population is by self-pollinating the flowers. This "selfing" can be done with the plant's own pollen (especially advantageous for alba and other unusual forms) or with pollen from another plant of the same species. Hybridizing in the wild is not recommended. The pollen is removed with a toothpick or something similar and smeared on the stigmatic surface. After pollinating, I often cut off the pouch and tepals of the flower to make it less noticeable (and less attractive) to anyone who might come upon it.

In the fall, the seed will be distributed naturally. By increasing the amount of seed available, it increases the chances for more seedlings and also enhances the possibility of further colonization.

The seed can also be harvested and "planted". The key to planting is to disturb the soil as little as possible. Since seed germination and plant development are dependent on a symbiotic relationship with soil mycorrhizae, disturbing the soil would be detrimental. One method of planting is to push a nail, pencil, or screwdriver at an angle, about four inches into the soil. Seed is sprinkled into and around the mouth of the hole, where rain or wind will take it to various depths in the soil; or an eyedropper of water can be squirted in to accomplish the same purpose. Likewise, the seed can be suspended in water, using a touch of liquid detergent as a wetting agent, and squirted in the hole with an eyedropper. A syringe has also been recommended to inject the seed into the soil. Since the seed is as fine as flour, it does not need too large a diameter needle. Whatever the method, it should allow the seed to be distributed at depths between one and three inches below the surface. For best results, planting should be done in the fall when the seed ripens, and in close proximity to the mature plants (up to about six feet away). Similar ecological niches can also be planted in hopes of colonizing. Since it takes at least one year underground for the plants to develop their initial growth bud, don't expect to see anything for at least a couple of years.

I want to make it very clear that I do not advocate general collecting or removal of plants from the wild. I have written these instructions to help increase the number of plants in the wild, and where a plant is to be collected, to maximize its possibility of remaining in the breeding pool by detailing techniques on making divisions.

The Cypripediums are among the most difficult wild flowers to grow, as a group, and we have not perfected the techniques to grow them from seed as we have their sister genera. Thus, collections from the wild and propagations of these plants are the only source of plant material. Even for the specialist, losses occur due to fungi and diseases. I hope that the techniques described will not give people the desire to go out and remove plants, but will, on the contrary, provide them with the knowledge of how to enhance the chances for these plants to survive, reproduce, and multiply.

GRACIAS

Although an Editorial Committee has not yet been officially named, your Editor is very grateful indeed to Edgar Denison, Catherine Filla and Joanna Turner for help in getting this issue of Missouriensis ready for publication.

IVY-LEAVED SPEEDWELL IN MISSOURI

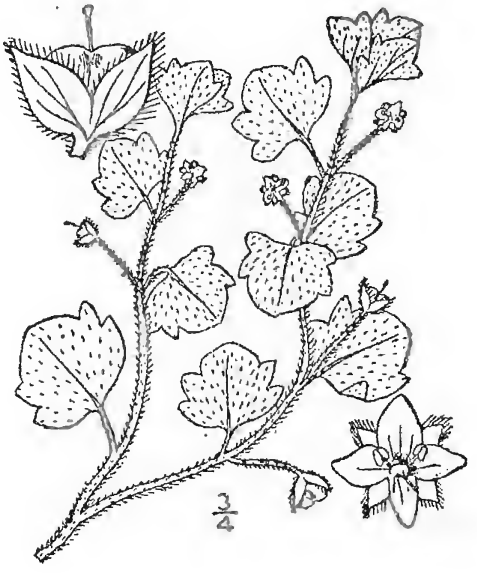
James S. Key, M.D.
Springfield, Missouri

A little Scroph., Veronica hederifolia L. was found in April of 1979 in Greene County. This dimunitive Speedwell is not listed in Steyermark's Flora of Missouri, no Missouri specimens are filed at the University of Missouri in Columbia or Southwest Missouri State University in Springfield, and no publication of its discovery in Missouri can be found in botany journals. However, specimens collected in 1942 from Jefferson County and in 1946 from St. Louis County are on file at Missouri Botanical Garden in St. Louis. It, therefore, is not a new species for the state, just one not previously reported.

Found in Wilson's Creek National Battlefield near the confluence of an intermittent stream with Wilson's Creek, Veronica hederifolia was abundant where found, but was not found at other areas in the Park. At a glance, it resembles both Veronica polita Fries and Veronica arvensis L. It is distinguished from the former by having only two notches on its leaves (one on each side) instead of the more numerous deeply notched, rounded serrations present on the leaves of V. polita. The alternate leaves of V. hederifolia readily distinguish it from the opposite leaved V. arvensis. The broadly ovate basal leaves on long petioles also provide a good distinguishing characteristic for V. hederifolia.

Voucher specimens are on file with Wilson's Creek National Battlefield (key, 2127) and SMSU (Key, 2128).

Veronica hederifolia



SILPHIUM HYBRIDS

Paul L. Redfearn, Jr.
Dept. of Life Sciences, Southwest Missouri State University
Springfield, Missouri 65802

Steyermark (1963) notes that Silphium terebinthinaceum Jacq. var. terebinthinaceum occasionally hybridizes with S. laciniatum L. var. laciniatum though none had been reported from Missouri. Hybrids between these two taxa have now been found in Taney (Redfearn, Hicks, & Pyrah, 31217) and Dallas (Redfearn, 32474) Counties. The hybrids are easily distinguished from their parents by their broadly laciniate leaves (Fig. 1). Though the parents are abundant and intermixed, the hybrids are generally rare. According to my colleague, Dr. Wallace Weber, who has observed a hybrid population over the years in Fulton County, Arkansas (Redfearn, 26447), rarity of hybrids may be because they do not persist in a habitat as long as their parents. On the other hand, rarity may also result from the different flowering periods of the parents. S. laciniatum appears to flower earlier than S. terebinthinaceum. Plant collectors would do well to keep a careful watch for these Silphium hybrids, especially where the two parents occur together.

Voucher specimens for these hybrid populations are deposited in the Herbarium of Southwest Missouri State University (SMS).

Literature Cited

Steyermark, J. A. 1963. Flora of Missouri. Iowa State Univ. Press, Ames. 1728 p.

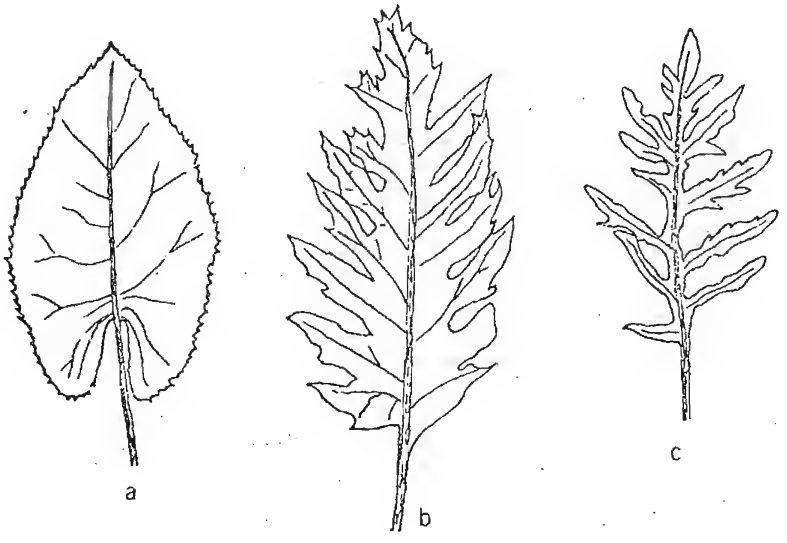


Figure 1. a. leaf of Silphium terebinthinaceum var. terebinthinaceum. b. leaf of hybrid between S. terebinthinaceum and S. laciniatum. c. leaf of S. laciniatum var. laciniatum.

CATECHISM COLUMN

In April 1980 I discovered on our property near Eureka, Missouri, a small patch of trillium with abnormally large numbers of leaves. Previously plants with four leaves had been observed, but this was my first sighting of plants that deviated so far from the normal. The largest plant was in flower, and crowded directly beneath the bloom were nine leaves in whorls of three, with sepals absent. Trillium recurvatum f. recurvatum is common on the property, and a few T. recurvatum f. shayi have been seen: the color of the petals of the abnormal plant, an odd brownish-yellow, seemed intermediate between the two. Of the adjacent smaller plants, one had an aborted flower bud and eleven leaves (or perhaps some were sepals- it was difficult to tell as all were crowded so closely together); another plant had nine leaves and three sepals; two other plants had six leaves and three sepals. If the acuity of my vision is doubted, be it known that this display was witnessed by members of the Webster Groves Nature Study Society on May 25, 1980. I would be interested to learn if anyone else in the state has observed a similar mutation.

—Joanna Turner 9564 Litzsinger Rd. St. Louis Mo. 63124

LOGOS AT LAST

Below are copies of the logos submitted in the contest announced some months ago. You will find comments about each of them, submitted by the artists. We will very much appreciate your comments, and a vote from the members about which of the logos we should adopt for various uses. Please note your choice on a card, and mail it as soon as possible to Edgar Denison, 544 E.Adams, St.Louis, Missouri, 63122.

- COMMENTS SUBMITTED BY THE ARTISTS

No. 1. Use of a drawing of Oenothera missouriensis is tentative and the designer is eager to make any changes which the judging committee might suggest.

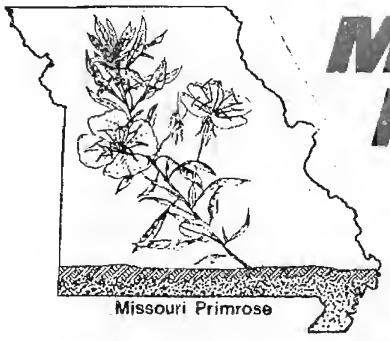
No. 2. "The submitted sketch needs to be polished if, perchance, it should be chosen."

No. 3. "This is not finished art...the plant under the magnifying glass could be anything the group chooses."

No. 4. "A dogwood is a dogwood and is beautiful..."

No. 5. "The idea behind the logo is the blending of people (through their knowledge, ideas, written works, etc.) with the study, knowledge and understanding of native plants."

No. 6. This design is in color: The letter "M" in green, the stylized flower in yellow. The background is black. "The flower is a stylized version of Oenothera missouriensis, the Missouri Primrose...the moon, or circular cut-out section in the upper right hand corner, reinforces the idea of the flower's blooming period...the foliage is fashioned into an "M" for missouriensis..." The designer is willing to work up a "cleaned-up copy" of the logo.



MissOuri Native Plant Society

1

MISSOURI NATIVE PLANT SOCIETY

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Missouri Native Plant Society

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POSSIBLY POISONOUS PLANTS

Gary A. Reese
University of Missouri
Columbia, Missouri

Funded by U.S. Department of Education, Institute of Museum Services Grant No. OEG007904021

Explanation of notes:

- ! Of major importance
- a Causes dermatitis in some people
- b Potential internal poisoning in humans
  NOTE: Lack of any notes generally indicates potential of internal poisoning in livestock only.
- c If infested with ergot
- d Potentially high nitrate accumulation
- e Toxic to horses only (as reported in the literature)
- f Selenium accumulator under certain conditions
- g Oxalic acid accumulator
- h If infested with rust (*Coleosporium* spp.)
- * Cited as poisonous in Steyermark
- % Average minimal lethal dose as % of animals weight of green plant. Based on cattle, unless otherwise indicated.

Scientific Name	Common Name	Notes
Acer rubrum	Red Maple	
*Achillea millefolium**	Common Milfoil	a
A. millefolium subsp. *lanulosa**	Common Milfoil	a
Actaea spp.*	Baneberry	!,b
*Adonis aestivalis**	Pheasant's Eye	
*Aesculus glabra**	Ohio Buckeye	!,b,1% toxicity
A. glabra var. *arguta**	Ohio Buckeye	!,b,1% toxicity
*A. pavia**	Red Buckeye	!,b,1% toxicity
Agropyron spp.	Wheat Grass	c
*Agrostemma githago**	Corn Cockle	
Agrostis alba	Redtop	c
*Ailanthus altissima**	Tree of Heaven	
Allium canadense	Wild Garlic	
A. cepa	Onion	
A. schoenoprasum	Chives	
Amaranthus palmeri	-----	
*A. retroflexus**	Rough Green Amaranth	d
Ambrosia artemisiifolia	Common Ragweed	a
*Amianthium muscaetoxicum**	Fly Poison	!,0.5% toxicity (sheep)
Ammi majus	-----	d
Amsinckia spp.	Fiddleneck or Tarweed	d
A. tessellata	-----	d
Anagallis arvensis	Pimpernel or Poor Man's Weatherglass	a
Anemone spp.	Anemone	
*Angelica venenosa**	Wood Angelica	!
*Anthemis cotula**	Mayweed	a

[1]Nomenclature (common and scientific names) based on Steyermark (1963).

Scientific Name	Common Name	Notes
Apocynum androsaemifolium*	Spreading Dogbane or Pink-flowered Dogbane	
A. cannabinum*	Indian Hemp or Dogbane	b
Arachis hypogaea	Peanut	
Aralia spinosa*	Hercules' Club	a
Argemone albiflora subsp. texana*	Prickly Poppy	
A. mexicana	Prickly Poppy	b
Arisaema atrorubens*	Jack-in-the-Pulpit or Indian Turnip	a,b
Armoracia rusticana	Horseradish	
Artemisia vulgaris var. latiloba*	Common Mugwort	
Asarum canadense*	Wild Ginger	a
Asclepias incarnata	Swamp Milkweed	
A. syriaca var. kansana*	Common Milkweed	
A. tuberosa var. interior*	Butterfly Milkweed	
A. verticillata	Whorled Milkweed	2% toxicity
Asimina triloba*	Pawpaw	a,b
Asparagus officinalis	Asparagus	a,b
Aster commutatus	White Prairie Aster	
A. ericoides	Wreath Aster	
A. praealtus var. prealtus	Willow-leaved Aster	
Atriplex rosea	Red Scale	
Avena sativa	Oats	
Baptisia leucantha	White Wild Indigo	
Barbarea vulgaris	Yellow Rocket or Winter Cress	
Bidens frondosa var. frondosa	Beggar Ticks or Sticktight	d
Brassica hirta	White Mustard	
B. kaber var. pinnatifida	Charlock	
B. juncea var. juncea	Leaf Mustard	
B. nigra	Black Mustard	
B. rapa	Field Mustard	
Bromus catharticus	Rescue Grass	d
B. inermis	Smooth Brome	c
Calamagrostis spp.	Reed Bent Grass	
Campsis radicans*	Trumpet Creeper	a
Canavalia ensiformis	Jack Bean	0.4% toxicity
Cannabis sativa*	Hemp or Marijuana	
Cardaria draba	Hoary Cress	
Carduus spp.	Plumeless Thistle	d
Cassia fasciculata	Partridge Pea	
C. occidentalis	Coffee Senna	
C. tora	Sicklepod	
Castilleja spp.	Painted Cup or Paintbrush	
Catalpa spp.	Catalpa, Lady Cigar, or Indian Bean	a
C. speciosa*	Catalpa	a
Caulophyllum thalictroides	Blue Cohosh	a,b
Celastrus scandens	American Bittersweet	b
Centaurea solstitialis	Yellow Star-Thistle	e
Centaurium calycosum	-----	
Cephalanthus occidentalis*	Buttonbush	
Chelidonium majus	Celandine	a,b
Chenopodium album	Pigweed or Lamb's Quarters	

Scientific Name	Common Name	Notes
C. ambrosioides*	Mexican Tea or Wormseed	
C. ambrosioides var. anthelminticum	-----	
C. glaucum	Oak-leaved Goosefoot	
Cicuta maculata var. maculata*	Spotted Cowbane or Water Hemlock	!,b,0.3% toxicity
Cirsium arvense var. arvense	Canada Thistle	d
Clematis virginiana	Virgin's Bower	a
Cleome serrulata	Rocky Mountain Bee Plant	d
Conium maculatum*	Poison Hemlock	!,a,b, approx. 0.38% toxicity
Convolvulus arvensis*	Field Bindweed	
C. sepium*	Hedge Bindweed	
Coronilla varia*	Crown Vetch	d
Corydalis aurea*	Golden Corydalis	
C. flavula	Pale Corydalis	
C. montana*	-----	
Crotalaria sagittalis var. sagittalis	Rattlebox	
C. spectabilis*	-----	
Croton capitatus var. capitatus	Hogwort	
C. capitatus var. lindheimeri*	Hogwort	
C. monanthogynus*	Croton	
C. texensis*	Skunk Weed	
Cynoglossum officinale*	Common Hound's Tongue	
Cypripedium calceolus*	Yellow Lady Slipper	a
Datura spp.	Jimson Weed or Thorn Apple	!,a,b,0.8% toxicity
D. innoxia*	-----	
D. Stramonium*	-----	a,b
Daucus carota*	Wild Carrot	a
Delphinium ajacis	Rocket Larkspur	a
D. tricorne*	Dwarf Larkspur	!
D. virescens var. virescens	-----	
Descurainia pinnata	Tansy Mustard	
Dicentra canadensis*	Squirrel Corn	
D. cucullaria*	Dutchman's Breeches	
Dirca palustris*	Leatherwood	a
Echinochloa crusgalli var. crusgalli	Barnyard Grass	d
Echium vulgare var. vulgare*	Blue-weed	a
Eclipta alba*	Yerba de Tajo	
Eleusine indica	Goose Grass or Yard Grass	d
Elymus spp.	Wild Rye	c
Equisetum arvense*	Field or Common Horsetail	
E. hyemale var. elatum	Scouring Rush	
Eragrostis cilianensis*	Stink Grass	
Erigeron canadensis*	Horse Weed	a
Erysimum cheiranthoides	Wormseed Mustard	
Euonymus atropurpureus	Wahoo	b
Eupatorium perfoliatum	Boneset	d
E. purpureum	Green-stemmed Joe-Pye Weed	d
E. rugosum*	White Snakeroot	!,b,1% toxicity (milk sickness)
Euphorbia corollata*	Flowering Spurge	b
E. cyparissias	Cypress Spurge	b
E. dentata*	-----	a
E. esula*	Leafy Spurge	
E. maculata*	Nodding Spurge	b,0.62% toxicity

Scientific Name	Common Name	Notes
E. marginata*	Snow-on-the-Mountain	a
E. prostrata	-----	
E. supina*	Milk Purslane	
Fagopyrum sagittatum*	Buckwheat	a
Fagus grandifolia	Beech	
Festuca elatior var. arundinacea	Alta Fescue	"Fescue Foot" in cattle
F. rubra var. commutata	Chewings Fescue	
Gerardia tenuifolia*	-----	e
Glyceria striata	Fowl Meadow Grass	
Glycine max	Soy Bean	
Gnaphalium purpureum	Purple Cudweed	d
Grindelia squarrosa	Gum Plant	f
Gymnocladus dioica	Kentucky Coffee Tree	!,b
Hedera helix*	English Ivy	a,b
Helenium amarum*	Bitterweed	
H. autumnale*	Sneezeweed	
H. flexuosum*	Sneezeweed	
Helianthus annuus	Common Sunflower	d
Heracleum maximum*	Cow Parsnip	a
Holcus lanatus*	Velvet Grass	
Hordeum vulgare var. vulgare	Barley	d
Hydrangea arborescens*	Wild Hydrangea	b
Hydrastis canadensis	Golden Seal	b
Hypericum perforatum*	Common St. John's-wort	a
H. punctatum	-----	
Ilex opaca*	American Holly	
I. verticillata var. padifolia*	Winterberry	
Impatiens capensis*	Spotted Touch-me-not	
Ipomoea pandurata*	Wild Potato Vine	
Iris virginica var. shrevei*	Southern Blue Flag	a,b
Juniperus virginiana	Red Cedar	a
Kallstroemia hirsutissima	-----	33.0% toxicity
Kochia scoparia	Summer Cypress or Fire Bush	
Lactuca canadensis*	Wild Lettuce	
L. scariola	Prickly Lettuce	d
Laportea canadensis*	Wood Nettle	a
Lamium amplexicaule*	Henbit	
Lathyrus spp.	Vetchling or Wild Pea	!
L. hirsutus	Caley Pea	
L. latifolius	Everlasting Pea	
L. pusillus	-----	
Leonurus cardiaca*	Motherwort	a
Lespedeza stipulacea	Korean Clover	badly cured hay
Ligustrum vulgare*	Common Privet	b (mild)
Linum usitatissimum var. usitatissimum	Common Flax	
L. rigidum var. rigidum	-----	
Lobelia cardinalis	Cardinal Flower	
L. inflata*	Indian Tobacco	!,b,0.5% toxicity
Lobelia siphilitica*	Blue Cardinal Flower	
Lolium perenne	Perennial Rye Grass	
L. temulentum	Darnel	
Lotus corniculatus	Bird's-foot Trefoil	
Lycium halimifolium*	Matrimony Vine	
Lycopersicon esculentum	Tomato	b (lvs.,stems)

Scientific Name	Common Name	Notes
Lygodesmia juncea*	-----	
Lyonia mariana*	Stagger Bush	Endangered (SCS/MDC 1977 list)
Maclura pomifera*	Osage Orange	a
Malva parviflora	Mallow	d
Medicago sativa	Alfalfa	
M. polymorpha var. vulgaris	California Bur Clover	
Melanthium virginicum*	Bunchflower	
Melia azerdarach*	China Tree or Pride of India	!,b,0.5% toxicity
Melilotus albus	White Sweet Clover	
M. officinalis*	Yellow Sweet Clover	d (improperly cured hay)
Menispermum canadense	Moonseed	b
Menyanthes trifoliata var. minor*	Buckbean	
Morus alba	White Mulberry	b (unripe fruits)
Narcissus spp.	Narcissus	b
Nicandra physalodes*	Apple-of-Peru	b,fly poison
Nicotiana rustica*	Wild Tobacco	
Nymphaea tuberosa	Tuberous Water Lily	
Onoclea sensibilis*	Sensitive Fern	
Ornithogalum umbellatum*	Star-of-Bethlehem	b
Oxalis corniculata	Creeping Lady's Sorrel	
Oxypolis rigidior var. ambigua*	-----	a
Oxalis stricta*	Yellow Wood Sorrel	g
O. violacea*	Violet Wood Sorrel	g
Oxytropis lambertii*	Loco Weed	
Panicum capillare var. capillare	Witch Grass	d
Papaver somniferum*	Common Poppy	!,b
P. rhoeas	Corn or Field Poppy	
Parthenocissus quinquefolia	Virginia Creeper, Woodbane, or Five-leaved Ivy	b
P. inserta	-----	b
Paspalum dilatatum	Dallis Grass or Water Paspalum	c
Pastinaca sativa*	Parsnip	a
Pedicularis canadensis*	Wood Betony	
Peltandra virginica*	Arrow Arum	
Penstemon spp.	Beard-tongue	f
Phacelia spp.	Phacelia	a
Phalaris arundinacea	Canary Grass	c
Phaseolus lunatus var. lunonanus*	Lima Bean or Butter Bean	b
Phoradendron flavescens*	Mistletoe	b
Physalis heterophylla var. heterophylla	Ground Cherry or Husk Tomato	
P. longifolia var. subglabrata*	Ground Cherry or Husk Tomato	b
Phytolacca americana*	Pokeweed	!,b
Pisum sativum var. arvense	Field Pea	
Poa spp.	Bluegrass	c
Podophyllum peltatum*	May Apple	a,b
Polygala senega	Seneca Snakeroot	
P. sanguinea	-----	
Polygonum spp.	Knotweed or Smartweed	a,d
P. hydropiper*	Water Pepper	
P. persicaria var. persicaria*	Lady's Thumb	

Scientific Name	Common Name	Notes
P. punctatum var. majus*	-----	
Portulaca oleracea	Purslane	
Prunus persica var. persica	Peach	(seeds, pits)
P. serotina*	Black Cherry	!,b,0.2% toxicity (lvs.)
P. virginiana	Choke Cherry	!,0.25% toxicity (lvs.)
Psoralea argophylla*	Silvery Psoralea	
P. tenuiflora*	Scurfy Pea	
Pteridium aquilinum*	Bracken	!
Pyrus coronaria	Wild Crab	b (seeds)
P. malus	Apple	b (seeds)
Quercus coccinea	Scarlet Oak	
Q. marilandica	Black Jack Oak	
Q. stellata	Post Oak	
Q. velutina	Black Oak	
Ranunculus spp.	Buttercup or Crowfoot	a
R. abortivus*	Small-flowered Crowfoot	
R. acris*	Tall Buttercup	
R. bulbosus var. bulbosus	Bulbous Buttercup	
R. cymbalaria var. cymbalaria	Seaside Crowfoot	
R. parviflorus	Small-flowered Crowfoot	
R. repens	Creeping Buttercup	
R. sceleratus var. sceleratus	Cursed Crowfoot	a
Raphanus raphanistrum	Wild Radish	
R. sativus	Radish	d
Rhamnus cathartica	Common Buckthorn	b
Rhus radicans*	Poison Ivy	a(!)
Rhus toxicodendron	Poison Oak	a(!)
Ricinus communis*	Castor-oil Plant or Castor Bean	!,b,0.2% toxicity (seeds)
Robinia pseudo-acacia*	Black Locust	
Rudbeckia hirta	Black-eyed Susan	
R. laciniata var. laciniata*	Wild Goldenglow	
Rumex spp.	Dock or Sorrel	a,d
R. acetosella*	Sheep Sorrel	a
R. crispus*	Sour Dock	a
Ruta graveolens*	Common Rue	a
Salvia reflexa	-----	
Sambucus canadensis*	Common Elderberry	b
S. pubens*	Red-berried Elder	b
Sanguinaria canadensis*	Bloodroot	b
Sapindus drummondii*	Soapberry	a, fish poison
Saponaria officinalis*	Bouncing Bet	3.0% toxicity
S. vaccaria*	Cow Herb	
Scirpus americanus var. polyphyllus	Chairmaker's Rush or Three Square	
Secale cereale	Rye	c,d
Senecio aureus*	Golden Ragwort	
S. plattensis	Prairie Ragwort	
S. vulgaris	Common Groundsel	
Sicyos angulatus*	Bur Cucumber	a
Sium suave	Water Parsley	
Solanum spp.	Nightshade	d
S. americanum*	Black Nightshade	b

Scientific name	Common Name	Notes
S. carolinense*	Horse Nettle	!,b
S. dulcamara var. dulcamara*	Climbing Nightshade	!,b
S. elaeagnifolium*	White Horse Nettle	0.1% toxicity
S. rostratum*	Buffalo Bur	
S. torreyi	-----	
S. triflorum*	-----	
S. tuberosum*	Potato	b
S. villosum	-----	
Solidago spp.	Goldenrod	d
S. odora	Sweet Goldenrod	h
Solidago rigida var. rigida*	Stiff Goldenrod	
S. speciosa	-----	h
Sorghum halepense*	Johnson Grass	
Spigelia marilandica*	Pink-root	
Stellaria media var. media*	Common Chickweed	d
Tanacetum vulgare*	Tansey	b
Tephrosia virginiana*	Goat's Rue	Fish poison
Thlaspi arvense	Field Penny Cress	
Tribulus terrestris*	Puncture Vine	d
Trifolium hybridum var. pratense*	Alsike Clover	a
T. pratense	Red Clover	
T. repens	White Clover	
Typha latifolia	Common Cat-tail	e
Urtica chamaedryoides*	Nettle	a(!)
U. dioica var. procera*	Tall Nettle	a(!),d
U. urens*	Dwarf Nettle	a
Veratrum woodii*	False Hellebore	a
Verbesina encelioides var. exauriculata	-----	d
Vicia sativa	Common Vetch	
V. villosa	Hairy Vetch	
Xanthium spp. (includes X. chinense, X. italicum, and X. pensylvanicum)*	Cocklebur	!,1.5% toxicity
Zanthoxylum americanum	Prickly Ash	
Zea mays	Maize, Indian Corn, or Corn	d
Zigadenus elegans*	White Camas	!,b,6.0% toxicity
Z. nuttallii	Death Camas	!,b,0.5% toxicity

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